

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

---

B1  
Claim 1 (currently amended). A method for setting process parameters of a production process for an elongate sheet-like product (2) to achieve a predeterminable quality, with the following features:

~~numerous~~ recording a plurality of process parameters of the production process ~~are recorded~~ as a function of time in the form of process data,

processing the process data ~~are processed~~ in at least a first data processing unit (5) and output as production data,

observing the surface of the product (2) ~~is observed~~ by means of a surface inspection system (6) within or at the end of the production process in a process step, the observation data being used in at least a second data processing unit (8) to record the entire surface as a ~~kind of~~ surface map with established surface features in the form of surface data and to classify the surface features according to various types

and/or according to size and/or according to frequency and enter them in the surface map according to their position,

outputting the various classes and positions of surface features ~~are output~~ as product data,

feeding the production data and the product data ~~are fed~~ together to at least a third data processing unit ~~(11)~~ and ~~investigated~~ investigating the production data and the product data there for correlations existing between them, with rules as to how the product data depend on specific production data being established,

setting the process parameters ~~are set~~ in accordance with the established rules to achieve a desired quality.

Claim 2 (currently amended). The method as claimed in claim 1, the product ~~(2)~~ being rolled steel and the production process being a rolling process, in particular a hot-rolling process in a cast-rolling installation.

Claim 3 (currently amended). The method as claimed in claim 1, the surface inspection system ~~(6)~~ being an arrangement having a plurality of sensors, in particular cameras, with downstream image analysis systems.

Claim 4 (currently amended). The method as claimed in claim 1, the investigation for correlations between production data and product data being in particular a correlation program ~~known per se~~, which considers the entropy in the data space and detects correlations by finding data constellations with minimal entropy.

B1  
Claim 5 (currently amended). The method as claimed in claim 1, the surface inspection system ~~(6)~~ analyzing the surface data online or offline, so that the product data are already available during production and detected correlations can be used directly for setting production parameters to achieve or maintain a predeterminable quality.

Claim 6 (currently amended). The method as claimed in claim 1, in which, after detection of certain correlations in the first or second data processing unit, production data or product data which do not show any correlations are filtered out and excluded from the further processing in the third data processing unit ~~(11)~~.

Claim 7 (currently amended). The method as claimed in claim 1, specific production data or product data being passed on in the first data processing unit ~~(5)~~ or second data

processing unit ~~(8)~~ without prior analysis, filtering or processing to the third data processing unit ~~(11)~~, to allow possible correlations with these unprocessed data to be found.

Claim 8 (currently amended). A device for setting process parameters of a production process in a production arrangement ~~(1)~~ for an elongate sheet-like product ~~(2)~~ to achieve a predeterminable quality, with the following features:

31  
in the production arrangement ~~(1)~~ there are ~~numerous~~ a plurality of measuring transducers ~~(3)~~ for process parameters of the production process, which are connected to at least a first data processing unit ~~(5)~~, in which the process data are processed and output as production data,

~~there is~~ at least one surface inspection system ~~(6)~~ in a stage of the production arrangement ~~(1)~~, which monitors the surface of the product and is connected to at least a second data processing unit ~~(8)~~, in which the surface is recorded as a ~~kind of~~ surface map with established surface features in the form of surface data and the surface features are classified according to various types and/or according to size and/or according to frequency and are entered in the

surface map according to their position, the various classes and positions of surface features being output as product data,

the outputs of the first data processing unit ~~(5)~~ and the second data processing unit ~~(8)~~ are in connection with at least a third data processing unit ~~(11)~~ with a correlation module ~~(12)~~, so that the production data and the product data can be investigated together for correlations existing between them, it being possible to establish rules as to how the product data depend on certain production data,

~~there is~~ an output or visual display unit ~~(14)~~, from which the established correlations and/or rules can be output, so that the production parameters can be set in accordance with the desired product quality.

Claim 9 (currently amended). The device as claimed in claim 8, wherein the production arrangement ~~(1) being~~ is a strip production arrangement, in particular a cast-rolling arrangement for steel strip.

Claim 10 (currently amended). The device as claimed in claim 8, wherein the surface inspection system ~~(6) being~~ is an

arrangement having a plurality of sensors, in particular cameras, with a downstream image analysis system ~~(7)~~.

Claim 11 (currently amended). The device as claimed in claim 8, wherein the correlation module ~~(12)~~ ~~containing~~ contains for the investigation of correlations between production data and product data a correlation program which considers the entropy in the data space and detects correlations by finding data constellations with minimal entropy.

β1  
Claim 12 (currently amended). The device as claimed in claim 8, wherein the output of the third data processing unit ~~(11)~~ ~~being~~ is connected ~~(14)~~ to closed-loop and open-loop control devices for the production process, to make possible an automatic or semiautomatic feedback and conversion of the correlation results into the production process.

Claim 13 (currently amended). The device as claimed in claim 8, wherein the first, second and third data processing units ~~(5, 8, 11)~~ ~~being~~ are arranged spatially apart from one another.

Claim 14 (currently amended). The device as claimed in claim 8, wherein the first, second and third data processing units

Application No. 10/030,238  
Amendment dated February 9, 2004  
Reply to Office action of 10/10/2003

31  
~~(5, 8, 11) being~~ are integrated into a common data processing  
center.

---